

What is claimed is:

1. A biconical antenna for wireless communications, comprising:  
  
a conical upper conductive body and a conical lower conductive body  
  
having a common apex, which is used as a power feed point,  
  
wherein a space between the conical upper and lower conductive  
  
bodies is filled with a dielectric material such that a shortest distance  
  
connecting the conical upper and lower conductive bodies along a surface of  
  
the dielectric material is a curve at which an incident angle of an incident  
  
wave incident on the surface of the dielectric material through the dielectric  
  
material from the common apex is a Brewster angle over the entire surface  
  
of the dielectric material.
2. The biconical antenna as claimed in claim 1, wherein the curve  
  
is a log-spiral curve.

3. The biconical antenna as claimed in claim 1, wherein a dielectric constant of the dielectric material is between about 4 - 50.
4. The biconical antenna as claimed in claim 1, wherein the dielectric material is selected from the group consisting of high-density glass, dielectric ceramic, and engineering plastic.
5. The biconical antenna as claimed in claim 1, wherein a length of the conical upper conductive body is shorter than a length of the conical lower conductive body.
6. The biconical antenna as claimed in claim 5, wherein the length of the conical upper conductive body is at least  $\lambda_0/4$ , wherein  $\lambda_0$  is a wavelength when a usable impulse is the minimum frequency.

7. The biconical antenna as claimed in claim 5, wherein the conical upper conductive body is extended beyond the surface of the dielectric material.

8. The biconical antenna as claimed in claim 1, wherein a length of the conical lower conductive body is shorter than a length of the conical upper conductive body.

9. The biconical antenna as claimed in claim 8, wherein the length of the conical lower conductive body is at least  $\lambda_0/4$ , wherein  $\lambda_0$  is a wavelength when a usable impulse is the minimum frequency.

10. The biconical antenna as claimed in claim 8, wherein the conical lower conductive body is extended beyond the surface of the dielectric material.